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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,031	10/23/2003	David William Boerstler	AUS920030579US1	2377
45327	7590	07/06/2005		
IBM CORPORATION (CS) C/O CARR LLP 670 FOUNDERS SQUARE 900 JACKSON STREET DALLAS, TX 75202				
			EXAMINER MIS, DAVID C	
			ART UNIT 2817	PAPER NUMBER

DATE MAILED: 07/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Interview Summary</b>	<b>Application No.</b> 10/693,031	<b>Applicant(s)</b> BOERSTLER ET AL.	
	<b>Examiner</b> David Mis	<b>Art Unit</b> 2817	

All participants (applicant, applicant's representative, PTO personnel):

(1) David Mis.

(3) Dustin M. Mauck.

(2) Theodore Shiells.

(4) \_\_\_\_\_.

Date of Interview: 09 June 2005.

Type: a) ☒ Telephonic b) ☐ Video Conference  
c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☒ No.  
If Yes, brief description: \_\_\_\_\_.

Claim(s) discussed: see attached.

Identification of prior art discussed: Cadalore et al.


Agreement with respect to the claims f) ☐ was reached. g) ☒ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Applicant provided a FAX with proposed changes and Examiner provided additional changes - copy attached.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

  
Examiner's signature, if required

## Summary of Record of Interview Requirements

### Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

### Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

#### Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

#### 37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,  
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

### Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

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### CLAIMS

1. (Currently Amended) A method of varying the loop bandwidth of a PLL (Phase Lock Loop), comprising the steps of:

inserting a switched capacitance in ~~the~~ a damping resistor leg of a low pass filter portion of the PLL; and

switching the switched capacitance, as a function of a reference frequency and <sup>a divided</sup> ~~the~~ PLL output frequency <sup>continuous</sup> ~~[[.]] wherein said function is the difference between the reference frequency and~~ ~~the PLL output frequency.~~

2. (Currently Amended) The method of claim 1, wherein ~~[[+]]~~ said switched capacitance is connected in parallel with a damping resistor, ~~and~~

~~said function is the difference between the reference frequency and the PLL output frequency.~~

3. (Original) The method of claim 2, comprising the additional steps of:

mixing said reference frequency and said PLL output frequency to generate a difference frequency; and

applying said difference frequency to said switched capacitor to alternately connect said switched capacitor to opposite ends of said damping resistor.

4. (Currently Amended) A method of varying the loop bandwidth of a PLL (Phase Lock Loop), comprising the steps of:

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generating a switching signal that is a function of a reference frequency and <sup>a divided</sup> the PLL output frequency, wherein said function is <sup>continuous</sup> ~~the difference between the reference frequency and the PLL~~ output frequency;

inserting a switchable capacitor in a damping resistor leg of a low pass filter portion of the PLL; and

varying the effective impedance of the damping resistor leg by switching the connections of said switchable capacitor in accordance with said switching signal.

5. (Currently Amended) A PLL (Phase Lock Loop), comprising:

a PFD (Phase Frequency Detector) including first and second inputs and an output;

a reference signal of frequency F1 connected to said first input of said PFD;

a VCO (Voltage Controlled Oscillator) including an input and an output providing an output signal of frequency F2 when the PLL is in a stable condition;

a signal frequency divider, operable to alter the frequency of the VCO output signal by a ratio of F1/F2, connected between said output of said VCO and said second input of said PFD;

a mixer connected to said first and second inputs of said PFD, said mixer providing a variable frequency output signal F3 indicative of the difference in frequency of the first input and the second input ~~two signals~~ received by said PFD;

an LPF (Low Pass Filter) connected between said output of said PFD and said input of said VCO and further connected to receive the signal F3 from said output of said mixer; and

a variable impedance damping resistor ~~comprising a~~ which is part of said LPF, the impedance of said variable impedance damping resistor being a function of the frequency of the signal F3.

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6. (Original) The apparatus of claim 5, wherein:

said variable impedance damping resistor comprises a switched capacitor circuit; and

the impedance of said damping resistor increases ~~and~~ as the frequency of the signal F3 decreases.

7. (Currently Amended) A PLL (Phase Lock Loop), comprising:

a PFD (Phase Frequency Detector);

a VCO (Voltage Controlled Oscillator);

a signal frequency divider, operable <sup>ON</sup> ~~to alter~~ the frequency of the VCO output signal by a ratio of F1/F2 where F1 is the frequency of a reference signal used by said PLL and F2 is the desired output frequency of the PLL when in a stable condition; and

an LPF (Low Pass Filter) connected between an output of said PFD and an input of said VCO, said LPF including a variable impedance damping resistor, the impedance of said variable impedance damping resistor varying as a function of the difference between F1 and F2 <sup>the signal frequency divider output</sup>

8. (Currently Amended) Apparatus for use in adaptive control of loop bandwidth in a PLL (Phase Locked Loop) system, comprising:

a PFD (Phase Frequency Detector) means having

a reference clock input having a corresponding W2 frequency component signal,

a feedback clock signal having a corresponding W1 frequency component signal,

and

an output signal;

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an LPF(Low Pass Filter) interconnected to said output signal, said LPF including  
a switched capacitor circuit with a control input, and  
the output signal of the PFD a W1 frequency component signal; and <sup>continuous</sup>  
a difference means for developing a control signal corresponding to the difference between  
said W2 and W1 frequency component signals, said control signal being delivered to said control  
input of said switched capacitor circuit.

9. (Currently Amended) A PLL (Phase Lock Loop), comprising:  
a PFD (Phase Frequency Detector) including reference and feedback clock inputs and an  
output;

a VCO (Voltage Controlled Oscillator) including an input and an output providing an output  
signal of a given frequency when the PLL is in a stable condition;

feedback clock means, operable to provide a feedback clock signal, connected between said  
output of said VCO and said second input of said PFD;

control signal supplying means, connected to said first and second inputs of said PFD, said  
control signal supplying means providing a control signal F1 indicative of <sup>a</sup>the difference between  
the reference clock input and the feedback clock input in frequency of the two signals received by  
said PFD;

an I.PF (Low Pass Filter) connected between said output of said PFD and said input of said  
VCO and further connected to receive the signal F1 from <sup>control</sup>said an output of said a mixer; and

a variable impedance damping resistor ~~comprising a~~ which is part of said I.PF, the  
impedance of said variable impedance damping resistor being a function of the control signal F1.